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Date: August 21, 2009/Eddie Rowell/
Eddie Rowell**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of:

Applicant(s): Leonard N. Schiff, *et al.*

Examiner: Andrew Chung Cheung Lee

Serial No: 10/602,358

Art Unit: 2619

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Title: REDUCING INTERFERENCE BETWEEN USERS IN A COMMUNICATIONS
SYSTEM THROUGH TIME SCATTERING

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellant submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief.

TABLE OF CONTENTS

I.	Real Party in Interest (37 C.F.R. §41.37(c)(1)(i)).....	Page 3
II.	Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii)).....	Page 3
III.	Status of Claims (37 C.F.R. §41.37(c)(1)(iii)).....	Page 3
IV.	Status of Amendments (37 C.F.R. §41.37(c)(1)(iv)).....	Page 3
V.	Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v)).....	Page 4
VI.	Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi)).....	Page 7
VII.	Argument (37 C.F.R. §41.37(c)(1)(vii)).....	Page 7
	Conclusion.....	Page 9
VIII.	Claims Appendix.....	Page 10
IX.	Evidence Appendix.....	Page 18
X.	Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x)).....	Page 18

I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Qualcomm Incorporated, the assignee of the present application.

II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which may be related to, will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1-11, 13-23, 26-32, 35-37, and 39-42 stand rejected by the Examiner. Claims 12, 24, 25, 33, 34, and 38 have been canceled. The rejection of claims 1-11, 13-23, 26-32, 35-37, and 39-42 is being appealed.

IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

There have been no amendments made to the claims after the Final Office Action dated April 2, 2009.

V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))

Independent claim 1 is directed towards a method for transmitting data in a communication system wherein said data is transmitted in communication frames. The method comprises wirelessly receiving, at a terminal device, one or more scattering instructions (paragraph 29, Fig. 8, paragraph 40), the scattering instructions providing information for partitioning said data into intervals (paragraph 31), each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner (Figs. 4 - 6, paragraph 31-32), and transmitting the communication frames.

Independent claim 8 is directed toward a terminal device transmitting data in a communication system wherein said data is transmitted in communication frames. The terminal device comprises a processor (Fig. 11, reference numeral 1130), a memory of stored time-scattering control information coupled to the processor (Fig. 11, reference numeral 1120), and a machine accessible medium (Fig. 11, reference numeral 1160), coupled to the processor, having instructions encoded therein, the instructions, when executed by the processor, cause the terminal device to wirelessly receive one or more scattering instructions (Fig. 8, paragraph 40), the scattering instructions providing information for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner (Fig. 8, paragraphs 40-41), and transmitting the communication frames (Fig. 8, paragraph 41).

Independent claim 15 directed towards a method for transmitting data in a communication system wherein said data is transmitted in communication frames. The method comprises wirelessly receiving scattering instructions (Fig. 9, paragraph 44), receiving a request from a terminal device for access to a communications channel (Fig. 9, paragraph 44), generating a schedule of transmission for the terminal device based on the scattering instructions (Fig. 9, paragraph 44), the schedule for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner, and transmitting the schedule of transmission

to the terminal device (Fig. 9, paragraph 44).

Independent claim 26 is a means plus function claim directed towards an apparatus for transmitting data in a communication system wherein said data is transmitted in communication frames. The apparatus comprises means (Fig. 1, reference numeral 110, Fig. 12, reference numeral 1250) for receiving a request from a terminal device for access to a communications channel (Fig. 9, paragraph 44) and for wirelessly receiving scattering instructions (Fig. 9, paragraph 44), means (Fig. 1, reference numeral 110, Fig. 12, reference numeral 1250) for generating a schedule of transmission for the terminal device based on the scattering instructions (Fig. 9, paragraph 44), the schedule for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner, and means (Fig. 12, reference numerals 1212, 1222, 1232, and 1242) for transmitting the schedule of transmission to the terminal device (Fig. 9, paragraph 44).

Independent claim 35 is a means plus function claim directed towards a terminal device for transmitting data in a communication system wherein said data is transmitted in communication frames. The apparatus comprises means (Fig. 11, reference numeral 1110, paragraph 46) for wirelessly receiving one or more scattering instructions (Fig. 8, paragraph 40), the scattering instructions providing information for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner, and means (Fig. 11, reference numeral 1150) for transmitting the communication frames (Fig. 8, paragraph 41).

Independent claim 39 is directed towards a terminal device comprising a receiver (Fig. 11, reference numeral 1110) to wirelessly receive data scattering instructions (Fig. 8, paragraph 40), a transmitter (Fig. 11, reference numeral 1150) to transmit, in accordance with the data scattering instructions, temporally scattered data, divided into at least two temporally non-contiguous time intervals, each time interval having a duration shorter than a time slot duration (Fig. 8, paragraphs 40-41).

Independent claim 41 is directed towards a terminal device for transmitting data in a communication system wherein said data is transmitted in communication frames. The terminal

device comprises a receiver (Fig. 11, reference numeral 1110) configured to wirelessly receive data scattering instructions (Fig. 8, paragraph 40), and a processor (Fig. 11, reference numeral 1130) configured to divide, in accordance with the data scattering instructions, at least one portion of said data into at least two temporally non-contiguous intervals, each interval having a duration shorter than a duration of one of said predetermined time slots (Fig. 8, paragraphs 40-41).

VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A. Whether claims 1-11, 13-23, 26-32, 35-37, and 39-42 are obvious under 35 U.S.C. §103(a) as being unpatentable over Beshai et al. (US 6,034,960) and Suzuki et al. (US 7,006,475 B1) in view of Ketseoglous et al. (US 5,732,076).

VII. Argument (37 C.F.R. §41.37(c)(1)(vii))

In a Final Office Action dated April 2, 2009, it was alleged that Beshai et al. teaches all of the elements of Applicants' claims, except that it was admitted that Beshai does not disclose wirelessly receiving, at a terminal device, one or more scattering instructions. It was further alleged that Suzuki et al. teaches this feature, but that the combination of Beshai and Suzuki fails to teach placing data into at least two temporally non-contiguous time intervals. Finally, it was alleged that Ketseoglous teaches this feature, and that it would have been obvious for one skilled in the art to combine the teachings of Beshai, Suzuki, and Ketseoglous to arrive at Applicants' claimed subject matter.

A. Beshai fails to teach “scattering instructions”

Applicants do not believe that Beshai *et al.* teaches “*wirelessly receiving, at a terminal device, one or more scattering instructions*”, as recited in Applicants' claimed subject matter. It was alleged that Beshai teaches this feature in Figure 7 and in column 5, lines 1-7 and column 8, lines 16-28. Applicants disagree.

Beshai *et al.* teaches a communications switch that processes streams of information destined for remote devices, as shown in figure 1 of Beshai. The processing consists of a scheduler 5 that determines how to multiplex multiple streams of data 6 onto a single, outgoing data stream 4. Figure 7 of Beshai illustrates a concept described as “reverse binary allocation” of time slots within a time frame, essentially “scattering” the time slots. Applicants admit that that concept of distributing information over a time frame is well-known in the art. However, there is no teaching or suggestion that the scheduler 5 *receives instructions* on *how* to perform the reverse binary allocation.

B. Suzuki fails to teach “*wirelessly receiving, at a terminal device, one or more scattering instructions*”

Applicants do not believe that Suzuki teaches “*wirelessly receiving, at a terminal device, one or more scattering instructions*”, as recited in Applicants’ claimed subject matter, and alleged in Fig. 1, Fig. 8, and column 10, lines 16-29. Generally speaking, Suzuki teaches a method for reducing a pilot signal search time in mobile terminals. This is achieved by a base station transmitting one or more “perch” channels in addition to one or more traffic channels. The traffic channels contain both voice and/or data as well as “call control information” which comprises “ring trip”, handover, call termination, etc. The perch channel(s) contains “code information required for despreading”, i.e., information to de-spread a code-modulated signal (Suzuki, column 1, lines 30-35).

The cited section from Suzuki (column 10, lines 16-29) describes how the process of interleaving can reduce interference between call control information and a perch channel. Interleaving is a technique well known in the art. Suzuki uses interleaving to rearrange the call control information that is transmitted from a base station in the traffic channel (Suzuki, col. 9, lines 60-67).

Importantly, there is no teaching or suggestion in Suzuki that *scattering instructions* are *received* a mobile station. Suzuki simply describes the well-known process of interleaving (rearranging) data at the base station to reduce interference. There is no teaching or suggestion in Suzuki of a mobile station receiving information regarding the interleaving process or how to de-interleave the data.

Finally, even if the mobile terminal in Suzuki were to receive some kind of information or instructions on how to de-interleave (or reconstruct) the data, that would not be the same thing as receiving instructions for “scattering” future transmissions by the mobile device, i.e., “to cause to separate widely” or to “distribute irregularly” as defined by Merriam-Webster online dictionary (www.merriam-webster.com).

Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-42 be reversed.

Respectfully submitted,



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VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1. (Previously Presented) A method for transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots, the method comprising:

wirelessly receiving, at a terminal device, one or more scattering instructions, the scattering instructions providing information for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner; and transmitting the communication frames.

2. (Original) The method of Claim 1, further comprising receiving configuration information, wherein the one or more scattering instructions are included with the configuration information.

3. (Original) The method of Claim 1, wherein the one or more scattering instructions comprise an index into a memory of stored time-scattering control information.

4. (Original) The method of Claim 3, wherein the memory is disposed within the terminal device.

5. (Original) The method of Claim 1, wherein the one or more scattering instructions comprise a tabular indication of how to temporally scatter the data.

6. (Previously Presented) The method of Claim 5, wherein the tabular indication specifies, by a time interval identifier, a starting location for the scattered data.

7. (Original) The method of Claim 1, wherein the one or more scattering instructions comprise an algorithm for temporally scattering the data.

8. (Previously Presented) A terminal device transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots, the terminal device comprising:

a processor;

a memory of stored time-scattering control information coupled to the processor; and

a machine accessible medium, coupled to the processor, having instructions encoded therein, the instructions, when executed by the processor, cause the terminal device to:

wirelessly receive one or more scattering instructions, the scattering instructions providing information for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner; and

transmitting the communication frames.

9. (Original) The terminal device of Claim 8, wherein the instructions, when executed by the processor further cause the terminal device to receive configuration information,

wherein the one or more scattering instructions are included with the configuration information.

10. (Original) The terminal device of Claim 8, wherein the one or more scattering instructions comprise an index into the memory.

11. (Original) The terminal device of Claim 10, wherein the memory is part of the terminal device.

12. (Canceled)

13. (Previously Presented) The terminal device of Claim 8, wherein the one or more scattering instructions comprise a tabular indication of how to scatter the intervals data.

14. (Previously Presented) The terminal device of Claim 8, wherein the one or more scattering instructions comprise an algorithmic indication of how to scatter the intervals.

15. (Previously Presented) A method for transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots, the method comprising:

wirelessly receiving scattering instructions;
receiving a request from a terminal device for access to a communications channel;
generating a schedule of transmission for the terminal device based on the scattering instructions, the schedule for partitioning said data into intervals, each interval shorter in

duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner; and

transmitting the schedule of transmission to the terminal device.

16. (Original) The method of Claim 15, wherein receiving the request comprises receiving an indication of the amount of data queued at the terminal device for communication.

17. (Original) The method of Claim 15, wherein the schedule of transmission comprises a list of time intervals.

18. (Previously Presented) The method of Claim 17, wherein each time interval comprises a starting location in one of said communication frames and a transmission duration.

19. (Original) The method of Claim 15, further comprising transmitting modulation control information for the time scattered data.

20. (Previously Presented) The method of Claim 18, wherein the communication frames are divided into a number of said time slots in accordance with a dividing rate.

21. (Original) The method of Claim 18, wherein the starting location comprises a time slot and the transmission duration comprises a number of time intervals.

22. (Previously Presented) The method of Claim 18, wherein the starting location comprises a first time interval identifier and the transmission duration comprises a second time interval identifier.

23. (Original) The method of Claim 15, further comprising receiving data from the terminal device, transmitted in a scattered manner per the scattering instructions, and reordering the data in accordance with the scattering schedule to obtain the data in its originally intended order.

24-25. (Canceled)

26. (Previously Presented) Apparatus for transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots comprising:

means for receiving a request from a terminal device for access to a communications channel and for wirelessly receiving scattering instructions;

means for generating a schedule of transmission for the terminal device based on the scattering instructions, the schedule for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner; and

means for transmitting the schedule of transmission to the terminal device.

27. (Previously Presented) The apparatus of Claim 26, wherein the means for receiving the request comprises means for receiving an indication of an amount of data queued at the terminal device for communication.

28. (Previously Presented) The apparatus of Claim 26, wherein the means for generating the schedule of transmission comprises means for generating a list of time intervals.

29. (Original) The apparatus of Claim 28, wherein each time interval comprises a starting location in a frame and a transmission duration.

30. (Original) The apparatus of Claim 26, further comprising means for transmitting modulation control information for the time scattered data.

31. (Original) The apparatus of Claim 26, wherein the communication frames are divided into a number of said time slots in accordance with a dividing rate.

32. (Original) The apparatus of Claim 26, further comprising means for receiving data from the terminal device, the data transmitted in a scattered manner in accordance with the scattering instructions, and means for reordering the data in accordance with the scattering schedule to obtain the data in its originally intended order.

33-34. (Canceled)

35. (Previously Presented) A terminal device for transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots, comprising:

means for wirelessly receiving one or more scattering instructions, the scattering instructions providing information for partitioning said data into intervals, each interval shorter in duration than each of said predetermined time slots, and placing at least two of said intervals into at least one of said communication frames, the at least two intervals placed within the at least one communication frame in a non-contiguous manner; and

means for transmitting the communication frames.

36. (Previously Presented) The terminal device of Claim 35, further comprising means for receiving configuration information, wherein the one or more scattering instructions are included with the configuration information.

37. (Original) The terminal device of Claim 35, further comprising a memory for storing time-scattering control information, wherein the one or more scattering instructions comprise an index into the memory.

38. (Canceled)

39. (Previously Presented) A terminal device comprising:

a receiver to wirelessly receive data scattering instructions;

a transmitter to transmit, in accordance with the data scattering instructions, temporally

scattered data, divided into at least two temporally non-contiguous time intervals, each time interval having a duration shorter than a time slot duration.

40. (Previously Presented) The terminal device of claim 39, further comprising:
a processor responsive to the data scattering instructions to divide the time slot data into the temporally non-contiguous time intervals.

41. (Previously Presented) A terminal device for transmitting data in a communication system wherein said data is transmitted in communication frames, the communication frames comprising predetermined time slots comprising:
a receiver configured to wirelessly receive data scattering instructions;
a processor configured to divide, in accordance with the data scattering instructions, at least one portion of said data into at least two temporally non-contiguous intervals, each interval having a duration shorter than a duration of one of said predetermined time slots.

42. (Previously Presented) The terminal device of claim 41, further comprising a transmitter configured to transmit the data arranged within the non-contiguous time intervals.

IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

None.

X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

None.